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Local analysis of porous silicon structure fabricated by nontraditional approach

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Abstract

© Published under licence by IOP Publishing Ltd. A comparison of experimental electron backscattering diffraction patterns for porous Si formed by ion implantation and thermal annealing is presented. For this purposes Ag-ion implantation into monocrystalline c-Si substrates at energy of 30 keV with dose of 1.5×1017 ion/cm2 was carried out. Surface nanoporous Si structures were studied by scanning electron microscope imaging and electron backscattering diffraction. Amorphization of Si after implantation and recrystallization of porous Si after annealing is observed. Ion implantation is suggested to be effective technique for a formation of nanoporous semiconductor layers, which could be easily combined with the crystalline substrate matrix for various applications.

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